Amendments to the Specification

Please replace the paragraphs beginning at page 5, line 6 and line 20, with the following rewritten paragraphs:

Over the recent past, investigators have returned to the subject of pre-treating a bare or dry highway pavement before a weather event occurs otherwise generating ice/pavement bond conditions. Rather than attempting to deposit granular salt on a highway, brine is placed on the roadway in small, angularly downwardly directed streams spaced about eight to twelve inches apart and usually extending across a width of one driving lane. The total application rate usually is thirty to sixty gallons of salt brine per lane mile. Where clear weather permits, the resultant brine strips will dry leaving a tenaciously bonded strip of fine salt along the pavement somewhat emulating paint. With continued dry weather, these fine crystalline strips will remain on the pavement for several days or more except for some deterioration along vehicle wheel track regions. When snow conditions then commence, the resultant moisture will activate the strips to ~~attach~~ attack the very development of an ice/pavement bond condition. Rubber edged squeegee plows have been used to remove a resultant un-bonded slush from the pretreated highway.

Kime, in ~~a co-pending application for~~ United States Patent No. 7,108,196 entitled "Method and Apparatus for Depositing Snow-Ice Treatment Liquid on Pavement", ~~filed _____, 2004~~ issued September 19, 2006, describes a brine pre-treatment method and apparatus wherein three streamer nozzles are employed, two of which are mounted laterally outwardly from the sides of the application truck and one is positioned between the rear wheels of the truck. Utilizing a vehicle speed responsive and accurate pump drive in conjunction with the streamer nozzle structures, liquid brine may be deposited at target volume levels per unit pavement mile outside of traffic wheel track zones so as to remain undisturbed pending the development of a weather event reactivating the brine. The outward streamer nozzles are employed to deposit liquid brine at the superelevated or near the crown portion of a highway lane. By positioning the streamer nozzles quite close to the pavement surface and aligning their axes in substantially parallel relationship with the plane defined by the pavement, very little overspray or splash otherwise occasioned by truck induced wind turbulence is encountered and a very high deposition efficiency is achieved. With the system, brine is deposited at relatively high highway speeds with little or no hindrance to coincident traffic.

Please replace the paragraph beginning at page 6, line 3, with the following rewritten paragraph:

The excellent effectiveness and attendant environmental and economic advantages of brine pre-treatment programs is significant. In general, governmental highway organizations consider that an initial application upon highways under snow-ice conditions, for example, on interstate highways, will be about 600 pounds of granular salt per mile. A pre-treatment of liquid brine at about 60 gallons per mile will evoke the use of a corresponding amount of salt from between about 100 and 125 pounds. Of particular economic interest, because the brine can be deposited well before an impending weather event, trucks and drivers can be utilized during normal working hours. In compliment with these economies, improvements have been made in techniques employed for forming the brine solutions prior to loading on the depositing trucks. See in this regard ~~application for~~ United States Patent No. 6,736,153 ~~Serial No. 09/961,469~~ by Kime, entitled "Brining System, Method and Apparatus", ~~filed September 24, 2001.~~ issued May 18, 2004.

Please replace the paragraph beginning at page 9, line 32, with the following rewritten paragraph:

In the discourse to follow, the system and apparatus for controlling truck-mounted hydraulically actuated components is illustrated in connection with exemplary trucks having gross vehicle weights (GVW) less than 26,000 pounds. Because the system employs a truck frame-mounted hermetically secure reservoir and manifold composite ~~of~~ assembly incorporating its own control assembly and associated slave composite assembly controller, communication to the truck cab operator interface and an associated master controller is by the advantageous expedient of using a bidirectional data transmission bus. Thus the system is readily installed in trucks with cabs of widely varying layout. Software employed with the multi-controller system is designed to accommodate the more elaborate hydraulic circuits of larger, principal highway traveling snow-ice control configured trucks. The system may be employed to control any of a wide variety of truck snow-ice control configurations both for depositing granular salt which may be wetted with brine and for depositing brine solutions alone.

Please replace the paragraph beginning at page 11, line 4, with the following rewritten paragraph:

Truck 10 can also be configured to distribute a snow-ice control liquid such as brine on the pavement 24. A variety of techniques are available for this purpose, one arrangement being shown in Figs. 2 and 3. Looking to those figures, dump bed 34 is shown supporting a frame-

mounted modular snow-ice control apparatus which is configured for carrying out a pretreatment procedure by depositing a snow-ice treatment liquid such as sodium chloride brine upon a dry pavement surface 24. Apparatus 52 is described in detail in ~~co-pending application for~~ United States patent No. 7,108,196 (supra). ~~by Kime entitled "Method and Apparatus for Depositing Snow-Ice Treatment Liquid on Pavement" filed February ___, 2004, serial no. (attorney docket HYD-2-017).~~ Apparatus 52 includes a tank assembly represented generally at 54. Assembly 54 is shown comprised of two polymeric tanks 56 and 58 which centrally are of generally elliptical cross-section with forwardly and rearwardly integrally formed support portions. Covered manways are shown respectively at 60 and 62 and the tanks are interconnected adjacent their bottom portions with one or more equalizing conduits, for example, having a diameter of about 3 inches. Such an equalization arrangement along with the design and a modular use of the tanks functions to avoid sloshing of the liquid within the tanks. Each of the tanks 56 and 58 may, for example, have a capacity of about 650 gallons and will be loaded with premixed brine. That brine may be premixed with the system described in the above-identified U. S. Patent No. 6,736,153. ~~application for United States patent by Kime, serial no. 09/961,469.~~ While the tanks may be mounted directly on the floor of dump bed 34, the apparatus 54 may be configured in modular fashion mounted upon a frame which is supported from the floor of the dump bed 34. In this regard, the figures reveal two galvanized brackets 64 and 66 which are components of that frame. Fig. 3 reveals a rearward cross beam 68 of the frame along with left and right rigid steel standards 70 and 72 having respective foot components 74 and 76. A horizontal support 78 extends between standards 70 and 72. Feet 74 and 76 are extended when the modular control arrangement 52 is removed from dump bed 34 such that the frame supporting the apparatus will be positioned above pavement a dump bed floor height. Additional pivotal struts (not shown) complete this elevated on pavement support. Fig. 3 illustrates that the apparatus 52 includes a rearwardly directed left streamer nozzle 80; a rearwardly directed intermediate streamer nozzle 81; and a rearwardly directed right streamer nozzle 82. Nozzles 80-82 are supported upon a nozzle support represented generally at 84 and comprised of downwardly depending standards 70 and 72, galvanized brackets 86 and 88 and a lower disposed cross rod 90 which is seen to be located quite close to pavement surface 24. Note that it extends leftwardly outwardly from the left wheel assembly 30. In this regard, left streamer nozzle 80 is mounted at the left end of rod 90 and thus is positioned about six inches laterally outwardly and leftwardly from vehicle tracks represented by the wheel assembly 30. As shown in Fig. 2, the nozzle axis 92 of nozzle 80 is substantially parallel with the surface of pavement 24 and is

arranged so as to be additionally parallel with the forward direction of travel of the vehicle 10. Experience with this form of mounting has shown that the nozzle axis as at 92 may be canted downwardly toward the pavement surface 24 by a very shallow angle. Note that cross rod 90 also extends laterally rightwardly and outwardly from rear wheel assembly 32 by about six inches. In similar fashion as left nozzle 80, right streamer nozzle 82 is rearwardly directed at its nozzle axis; (not shown) is substantially parallel with the surface of pavement 24 as well as the forward directional movement of truck 10. Intermediate nozzle 81 is mounted on top of cross rod 90 at a location between what will be right and left lane vehicle wheel tracks. The rearwardly directed streamer nozzle 81 is configured with a nozzle axis (not shown) which is substantially parallel with the surface of pavement 24 such that its orientation is the same as nozzles 80 and 82. The close proximity of the axes of nozzle 80-82 to the roadway pavement surface 24 permits their expression of a volumetrically controlled stream of liquid from their tips at a location avoiding wind turbulence developed by the forward movement of truck 10. That volumetric rate of liquid expression is controlled such that, in effect, a theoretical cylinder of liquid is generally horizontally projected rearwardly at a flow velocity having a horizontal velocity vector corresponding with the forward velocity of vehicle 10. Accordingly, there will be no relative motion between the stream of liquid and the surface of pavement 24. The expressed streams of liquid drops to the pavement under the influence of gravity with very little overspray or splash. The inputs of nozzles 80-82 are in fluid transfer communication via respective brine carrying hoses 100-102, with the pump outputs of three discrete combined hydraulic motors and pumps represented at respective blocks 104-106.

Please replace the paragraph beginning at page 13, line 1, with the following rewritten paragraph:

Referring to Fig. 4, the hydraulic system employed with the vehicle 10 and the snow-ice control apparatus with which it is configured is illustrated. Hydraulic motor 44 reappears as it would be coupled in driving relationship with spinner 42 (Fig. 1). The hydraulic motor employed to drive the auger assembly 38 is represented at 45; and the hydraulic motor employed to drive a wetting pump is represented at 46. When configured to operate the brining pretreatment apparatus 52, motor 45 would be configured with a pump in the manner described at 104 in Fig. 3; motor 44 would be configured with a brine pump in the manner described at 105 in Fig. 3; and motor 46 would be configured with a brine pump in the manner described at 106 shown in Fig. 3. A fluid pressure sensor or transmitter is shown at 122 which is responsive to the output

or outputs of valves in the array 114 as they extend to the input of hydraulic auger motor 45. With this arrangement, the difference or differential between the outputs of the low pressure sensor and the high pressure sensor can be employed in conjunction with a motor speed responsive lookup table and a pre-assigned lower threshold value, for example, 50 psi to develop a signal representing an evaluation of the auger motor 45 load value. That same load value can be employed to determine when the granular salt supply to the auger has reached a low level.

Please replace the paragraph beginning at page 14, line 6, with the following rewritten paragraph:

With the precepts of the present invention, all of the components, *inter alia*, represented in Fig. 4 above the dashed line 150 are retained within the hermetically secure reservoir and manifold composite assembly shown in conjunction with Figs. 1 and 2 at 50. The discourse now turns to that feature.

Please replace the paragraph beginning at page 16, line 15, with the following rewritten paragraph:

Control, *inter alia*, of the array of electromagnetically actuated valves at manifold portion 240 is provided by a composite control assembly represented in general at 280 in Fig. 6. In that figure, the control assembly 280 is seen to comprise a circuit board 282 and associated connector component 284. From that connector component, a multi-lead cable 286 is seen extending to the arrayed electromagnetic valves. An array of certain of the cables is seen extending to the composite control assembly 280 as represented in general at 288. In this regard, the system at hand is one wherein it is deemed beneficial to avoid penetration of the cab 12 of truck 10 with a multitude of electrical lines. Accordingly, electrical inputs otherwise extending to cab 12 are instead extended to the hermetically secure composite assembly 50. Circuit board 282 will incorporate a composite assembly controller which performs in slaved fashion to a master controller mounted within cab 12. Essentially the only communication or penetration into cab 12 from assembly 50 will be a bidirectional data transmission bus which may be of a robust variety and a substantial portion of the electrical hardware of the system will be protected in the hermetically secure housing 152. That securement is enhanced by maintaining a positive gas pressure within housing 152, for example, about 5 psi. Such pressure initially is developed as a natural consequence of the operation of the hydraulic circuitry of the system. However, it is maintained at the hydraulic fluid filler port 290 located

above fluid level 172 at forward side 154. That port 290 is provided in conjunction with a pressurizing filler breather cap 292. Cap 292 is similar to a conventional breather cap but incorporates a relief valve set at 5 psi and a vacuum breaker. Such breather caps can be provided as a model 57XL-40P-5 pressurized filler-breather cap marketed by Lenz Corporation of Dayton Ohio.

Please replace the paragraph beginning at page 17, line 5, with the following rewritten paragraph:

Referring to ~~Fig.~~ Figs. 9A and 9B, the external connections to and components within hermetically secure composite assembly 50 are represented in schematic form. In this regard, the hydraulic fluid reservoir portion identified at 112 is shown in block form with that same numeration. Further, the electrically or electromagnetically actuated valve-containing manifold portion 240 is represented in block form with that same numeration. The composite control assembly 280 is again identified in general with that numeration looking to a variety of functions for electronic hardware components represented in block form. Within the composite control assembly 280 there is provided a composite controller represented generally at 300 which may be provided as a type PIC16876 assembly high performance, ENHANCED flash microcontroller which incorporates a 10-bit analog-to-digital converter as well as a serial peripheral interface (SPI) port function which may be configured to support Recommended Standard 485 (RS-485) bidirectional data transmission. The device is marketed, for example, by Microchip Technology, Inc. In Fig. 9, the analog-to-digital function is represented at sub-block 302. An SPI port is represented at sub-block 304 and a bidirectional data transmission port associated with the noted RS-485 bus is represented at sub-block 306. The latter sub-block is seen associated with serial communications dual directional arrow 308 extending to a transceiver function represented at block 310. Transceiver 310 provides a level shift for RS-485 functioning and may be provided, for example, as a type DS75176BT transceiver marketed by National Semiconductor Corporation. Shown bidirectionally interactively associated with transceiver 310 is bidirectional arrow 312. Arrow 312 represents a bidirectional serial data bus of type RS-485. This type bus is characterized by its robust nature, particularly being suited to the severe environments encountered by truck 10. See generally, "National Semiconductor Application Note AN-1057, 1998. It is essentially this singular robust single twisted pair that penetrates cab 12 to a console contained master controller. That master controller will provide command inputs and interrogate inputs to composite assembly controller 300 via bus 312. Power to the control

components 280 as well as to the electrically actuated valves at manifold portion 240 is supplied from the battery of truck 10. Accordingly, such a battery is represented at block 314 located without the dashed boundary 50. The 12 volt output of battery 314 is submitted, as represented at line 316, to the interior of composite assembly 50. Within the protective environment of that composite assembly 50, the battery output is treated as represented at line 318 and block 320 to provide a regulated 22 volt power supply, for example, for use by analog components. Distribution of this supply as represented at arrow 322. In similar fashion battery output as represented at line 316 is tapped as represented at line 324 and block 326 to provide a regulated 5 volt power supply employed by components utilizing TTL voltage levels. Distribution of this power source is represented at arrow 328. The electrically actuated valves at 240 are actuated by solid-state switches as represented schematically by block 330 and control inputs represented by arrow 332 extending to block 240. These solid-state switches may be provided, for example, as type VNP10N07 FI power MOSFETs marketed by SGS-Thomson Microelectronics, Inc. Power is supplied to these switching devices for purposes of actuating the electromatically actuated valves of manifold portion 240 from the vehicle battery power input as represented at arrow 316. Note that arrow 316 extends to a power relay represented at block 334. From that relay 334 as represented at arrow 336 power for valve actuation is supplied to the solid-state switches 330. The solid-state switches 330 are activated from a 32-channel driver function as represented at block 338 and driver signals represented at arrow 340. Device 338 may be provided, for example, as a type HV9308, 32-channel serial to parallel converter with high voltage push-pull output marketed by Supertex, Inc. Such devices consist of a 32-bit shift register, 32 latches, and control logic to enable outputs. Driver function 338 receives controller outputs from SPI port function 304 of composite assembly controller 300 as represented at arrow 342.

Please replace the paragraph beginning at page 19, line 9, with the following rewritten paragraph:

The analog-to-digital function 302 of composite assembly controller 300 receives and converts the analog signal from the hydraulic system low pressure sensor earlier-described at 120. That function is represented as a block in the instant figure with the same identifying numeration. An analog signal from the sensor 120 is shown being asserted to the conversion function 302 as represented at ~~arrow~~ line 358. In similar fashion, the hydraulic system high pressure sensor earlier described at 122 and represented in block form with that same

numeration in the instant figure provides an analog signal to the conversion function as represented at ~~arrow~~ line 360. The master controller will be seen to submit an interrogation command to composite controller 300 on a periodic basis both for monitoring these hydraulic pressures with respect to their falling within an acceptable range of pressure as well as to utilize the data thus collected to evaluate whether or not the auger function is performing in conjunction with a low salt load. The output of these pressure sensor functions also can be employed for determining fault conditions such as, for example, a stalled auger. In addition to the monitoring of hydraulic fluid pressures, as represented at block 362 the hydraulic fluid temperature also is monitored for a variety of reasons including calibration and over-temperatures with respect to an over-temperature threshold calling for hydraulic system shutdown. The analog temperature output of function 362 is submitted as represented at ~~arrow~~ line 364 to the conversion function 302. It is acquired by the master controller function upon assertion of an interrogate command through bus 312.

Please replace the paragraph beginning at page 24, line 27, with the following rewritten paragraph:

Looking to pin array 550, the IRQ1-IRQ4 ~~pin~~ pins provide a chip selection function to UARTS 480-483. Also extending to those four UARTS are the COM1 SELECT – COM 4 SELECT pins. Following Receive (RX) and Transmit (TX) pins are two pins providing for Serial data out ~~(SDA)~~ (SDO) and Serial data in (SDI) to the flash memory and UARTS.